

## THE COMPOSITAE OF NEW GUINEA IV\*

### Additions and corrections to I, II, and III

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A few types considered to be destroyed in Berlin appeared to be still existing. Consequently, a few alterations in I and II became necessary. Furthermore, the late Mr. L. J. Brass mentioned in a letter some mistakes in I to be corrected.

#### I.

p. 524: in line 21 from above after Brass '5526' has to be added; add 'rarely tubular' after 'ligulate' in lowest line.

p. 525: add to '9.' in the key to the genera of *Astereae* of New Guinea:

c. Heads solitary, small, corolla of marginal flowers tubular, receptacle flat

#### 13. *Rhamphogyne*

p. 532: line 7 from above: 21362 has to be changed into 31263.

p. 535: line 4 from below: 4867 has to be changed into 4877.

p. 548: line 10 from below: 31052 has to be changed into 31032.

p. 552: line 11 from below: *Clemens* 5686 (A; B, type, †) has to be changed into *Clemens* 5686 (A; B, type; L).

p. 554: line 18 from above: *Clemens* 5248 (A; B, type of *O. clemensiae*, †) has to be changed into *Clemens* 5248 (A; B, type of *O. clemensiae*; L).

p. 584: in line 11 from below: 7309 A (A, neotype), neotype has to be omitted; line 12 from below: *Clemens* 7308 (B, type, †) has to be changed into *Clemens* 7308 (B, type; L).

p. 598: add 'cm' in line 15 from above.

p. 606: add before line 1 from above:

#### f. *gibbsiae*

Small herb, 6—13 cm tall. Leaves 1.5—5 cm long, 1—3 mm broad. Heads on 3—15 cm long peduncle.

Delete line 4 from above.

Add after line 10 from above:

#### f. *minuta* Koster, *nova forma*

Nana, 1—1.5 cm alta. Folia 6—12 mm longa, 0.5—1 mm lata. Capitulum subsessile, pedunculo 2 mm longo.

Typus: *Hope ANU 16105* (CANB).

Collector's annotation: forming small hard tussocks.

\* I in Nova Guinea, Bot. 24 (1966) 497—614 (numbering of tribe in accordance with this paper); II in Blumea 18 (1970) 137—145; III in Blumea 20 (1972) 193—226.

NEW GUINEA. West. Carstensz Mts., Kemabu Plateau, 1972, *Hope ANU 16105* (CANB).

**E c o l o g y:** open hard hummock bogs and *Carpha alpina* fen. Altitude 3450 m.

Add before line 4 from below:

**f. *pinguiculiformis***

Folia 1—2 cm longa, 5—8 mm lata, marginibus fimbriatis. Capitulum longe pedunculatum, pedunculo 7—10 cm longo.

p. 607: add after line 2 from above:

**f. *nana* Koster, *forma nova***

Folia 6—15 mm longa, 2.5—4 mm lata, marginibus non fimbriatis. Capitulum primo brevissime pedunculatum, demum pedunculo 1 cm longo.

**T y p u s:** *Brass & Meyer Drees 10085* (L).

**C o l l e c t o r s' a n n o t a t i o n s:** gregarious, flowers green.

NEW GUINEA. West. Mt. Wilhelmina, northern slopes, common, 1938, *Brass & Meyer Drees 10085* (L, type), *10158* (L).

**E c o l o g y:** in alpine bog turf. Altitude 3950—4100 m.

p. 612: add before Index:

### 13 RHAMPHOGYNE

S. Moore, J. Bot. 52 (1914) 146.

Very small herbs, caespitose. *Leaves* rosulate or nearly so, sessile, entire, pinnatifid or pinnatipartite, glabrous. *Heads* terminal, solitary, very small, discoid, heterogamous; involucre campanulate or ovoid, phyllaries 2—3-seriate, 6—12, membranous; marginal flowers female, 3—6, corolla tubular, 3- or 4-dentate, style-arms short, lanceolate, exserted, achene lageniform, compressed, beaked, lower part obovate-oblong, somewhat angular, glabrous, pappus wanting; disc-flowers bisexual or male, 3—6, corolla tubular, 3- or 4-dentate, anthers 3 or 4, rounded at the base, acute or subobtusate at the top, style-arms short, flat, achene like that in marginal flowers; receptacle small, flat, naked, foveolate.

**D i s t r i b u t i o n:** one species in Rodriguez Isl. (Mascarene Isl.), one in New Guinea.

**R e m a r k.** This genus is correctly brought by S. Moore to the *Astereae* from the *Anthemideae*. It was based on *Abrotanella rhynchospora* Balfour (Phil. Trans. Roy. Soc. Lond. 168, 1879; 353), which differs from the genus *Abrotanella* in having short lanceolate style-arms and lageniform beaked achenes.

**1. *Rhamphogyne papuana* Koster, *nov. spec.* — Fig. 1a—g.**

Herba nana, caespitosa vel solitaria, stolonifera, 1—3 cm alta. *Folia* subrosulata, sessilia, conferta, anguste spathulata vel lineari-spathulata, ad basin truncata, ad apicem subobtusata, integra, coriacea, utrinque glabra et minutissime glandulosa, 1—4 cm longa, 1—3 mm lata, nervo subtus prominente. *Capitula* solitaria, terminalia, heterogama, pedunculata, pedunculo 1—30 mm longo, glabro, costato, bracteis foliaceis 2 praedito; involucrem campanulatum, 2—2.5 mm longum, squamis imbricatis, 3-seriatis, ovatis vel ovato-oblongis, glabris, glandulosis, purpureis, exterioribus brevioribus, obtusis vel subrotundatis; flores marginales 4—6, feminei, corolla tubulosa, 4-dentata, purpurea, 1 mm longa, styli rami lanceolati, achenium lageniforme, subangulosum, breviter rostratum, parte inferiore ovato-oblonga, glabrum, 2—2.5 mm longum, pappo deficiente; flores disci

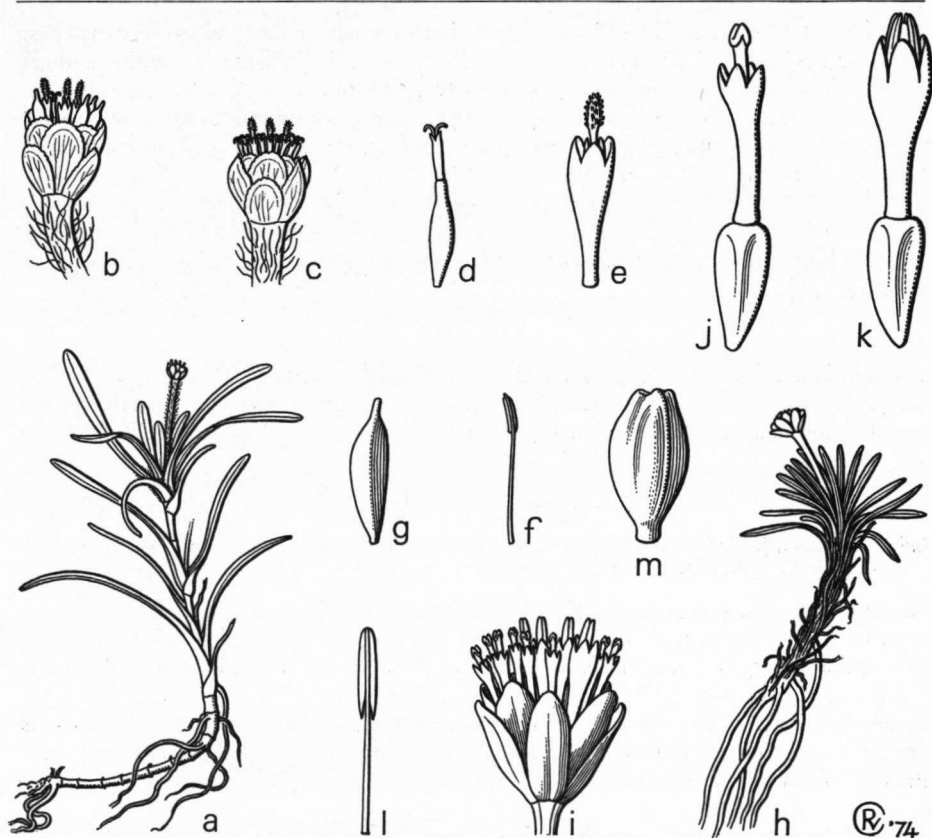


Fig. 1. *Rhamphogyne papuana*. — a. habit, nat. size; b, c. heads, X 5; d. marginal flower, X 10; e. disc-flower, X 10; f. anther, X 10; g. achene, X 10. (a—g: Hoogland & Schodde 7649, type). — *Abrotanella papuana*. — h. habit, nat. size; i. head, X 5; j. marginal flower, X 10; k. disc-flower, X 10; l. anther, X 10; m. achene, X 10. (h, m: Vink 16106; i—l: Kalkman 4975).

3 vel 4, masculi, corolla tubulosa, 3- vel 4-dentata, purpurea, 2 mm longa, antherae 4, ad basin obtusae, ad apicem subobtusae, filamentis latis, stylus crassiusculus, ramis lanceolatis, papillois, achenium rudimentare, pappo deficiente, receptaculum planum, nudum, foveolatum.

**Typus:** Hoogland & Schodde 7649 (L).

**Distribution:** New Guinea.

**NEW GUINEA.** West. Lake Habbema, Brass 9191 (A), 9555 (A, L); Star Mts., Mt. Antares, western lower summit, Kalkman 4533 (L). — East. Morobe Dist.: Sarawaket R., Mt. Enggom, Van Royen NGF 16203 (L); Upper Camp, Clemens 9843 (L, TNS). — Eastern Highlands Dist.: Chimbu Subdist., Mt. Wilhelm, Van Balgooy 234, 359, 485 (all L), Borgmann 103 (L), Brass 29977 (L), 30103 (CANB, L), Hoogland & Pullen 5753 (CANB, L, LAE). Mc Vean & Wade ANU 7017 (L), Van Royen NGF 15143 (CANB, L), Walker ANU 5051 (L); Kainantu Subdist., Mt. Piora, Henty & Carlquist NGF 16600 (CANB, L). — Western Highlands Dist.: Laiagam Subdist., Yobobos grassland area, source of Lagaip R., Hoogland & Schodde 7649 (L, type; CANB); Kubor R., Mt. Kinkain, Vink 16092 (L); Wabag Subdist., Mt. Sugarloaf, summit area, Hoogland & Schodde 7133 (CANB). — Southern Highlands Dist.: Tari Subdist., pass between Mt. Né and Mt. Kerewa, Vink 17178 (L); Ibiwara, Kalkman 4893 (L); Ialibu Subdist., Mt. Giluwe, Coode, Wardle & Katik NGF 4024 (L), Schodde 1891 (CANB, L).

**Collectors' annotations:** growing in small or large blue-green patches, leaves bright-green, midrib white, corolla red to purple, light brown, or white; anthers bright yellow or purple; achene purplish brown or reddish.

**Ecology:** on often shallow, sandy or peaty, often swampy soils in low, often sparse vegetation of low shrubs, alpine plants, grasses, sedges, mosses, etc., and on bare, often trodden soil; altitude 2550—4000 m.

## II.

p. 141: in line 10 from above: *Clemens 5251* (A, type) has to be changed into *Clemens 2551* (B, type; A, L).

## III.

p. 199: in line 2 from above: 4000 m has to be changed into 2900 m.

p. 207: According to the key in D. G. Drury, New Zeal. J. Bot. 10 (1972) 118, the species named *Gnaphalium involucreatum* Forst. f. should be brought to *G. sphaericum* Willd.

## 7. ANTHEMIDEAE

*Anthemideae* Cass., J. Phys. Chim. Hist. Nat. 88 (1819) 192; Benth. & Hook. f., Gen. Pl. 2 (1873) 203; Hoffmann in E. & P., Nat. Pfl. Fam. 4, 5 (1894) 267.

Shrubs or herbs. *Leaves* nearly always alternate, often pinnatipartite. *Heads* homogamous or heterogamous; phyllaries with scarious margins, marginal flowers female or neutral, corolla ligulate or tubular, sometimes bilabiate or wanting; disc-flowers bisexual, sometimes male or sterile, corolla tubular, 4- or 5-lobed, tube of all corollas often thickened, flattened or with two wings, anthers 4 or 5, rounded or obtuse at the base, style-arms short, truncate and penicellate at the apex, achenes mostly small, pappus existing of a small crown or of minute scales or wanting; receptacle naked, pilose, or paleaceous.

### KEY TO THE GENERA IN NEW GUINEA

- 1a. Tall or small herbs; corolla of marginal flowers ligulate. . . . . 2
- b. Small herbs; corolla of marginal flowers tubular . . . . . 3
- 2a. Leaves pinnatipartite; heads radiate; ligule of corolla of marginal flowers short, broad, obtusely 3-dentate, tube dorsally compressed . . . . . 1. *Achillea*
- b. Leaves entire or dentate with few digitate teeth; heads not radiate, ligule of corolla of marginal flowers short, narrowly oblong, obtuse or subacute, tube very short or wanting . . . . . 2. *Ischnea*
- 3a. Corolla of marginal flowers very shortly 2- or 3-dentate, achene angular; corolla of disc-flowers with a very short tube and a campanulate, widely patent, 4-partite limb . . . . . 3. *Centipeda*
- b. Corolla of marginal flowers 3- or 4-lobed or very short, conical or wanting, achene angular or compressed; corolla of disc-flowers tubular, 4- or 5-lobed . . . . . 4
- 4a. Leaves entire; corolla of marginal flowers tubular, 3- or 4-lobed . . . . . 4. *Abrotanella*
- b. Leaves dissected (rarely entire); corolla of marginal flowers very short, conical, or wanting . . . . . 5. *Cotula*

### 1. ACHILLEA

*Achillea* L., Spec. Pl. (1753) 896; Lessing, Syn. Comp. (1832) 250; Benth. & Hook. f., Gen. Pl. 2 (1873) 419; Hoffmann in E. & P., Nat. Pfl. Fam. 4, 5 (1894) 272.

Herbs, erect, perennial, aromatic, with subterraneous stolons. *Leaves* alternate, sessile, simple, broadened at the base, dentate to pinnatipartite. *Heads* corymbose, heterogamous, radiate; involucre campanulate or ovoid, phyllaries imbricate, appressed, gradually shorter to the exterior ones; marginal flowers few, female, corolla ligulate, ligule short, broad, obtusely 3-dentate at the top, tube dorsally compressed, more or less saccately broadened; tube of disc-flowers like that of marginal flowers, limb campanulate, 5-lobed; anthers obtuse at the base as well as at the top, achenes oblong or obovoid, dorsally compressed, glabrous; receptacle conical, paleaceous, pales membranous.

**Distribution:** about 100 species in Europe, Asia, N. Africa, America, Australia.

### ***Achillea millefolium* L.**

*A. millefolium* L., Spec. Pl. (1753) 899; DC., Prodr. 6 (1837) 24; Clarke, Comp. Ind. (1876) 143; Gray, Syn. Fl. N. Amer. 1 (2) (1884) 363; Robertson in Black, Fl. S. Austr. 4 (1957) 878; Curtis, Stud. Fl. Tasmania 2 (1963) 351; Cabrera, Fl. Buenos Aires 6 (1963) 258; Koster in Backer & Bakh. f., Fl. Java 2 (1965) 418; Cabrera in Correa, Fl. Patag. 7 (1971) 158.

Rigid herb, stems branched, terete, ribbed, appressed-pilose (hairs fairly long), 3—4 mm thick. *Leaves* 2- or 3-pinnatipartite, oblong-lanceolate, acute, thinly appressed pilose above, fairly dense so below, 4—7 cm long, 8—12 mm broad, segments linear, subulate-mucronate, about 0.5 mm broad. *Corymbs* terminal, dense, 5—10 cm broad; *heads* many, shortly pedicellate; involucre ovoid, phyllaries 4-seriate, pilose at the margins (hairs fairly long), with prominent midrib, outer ones ovate-oblong, acute, inner ones oblong, obtuse; marginal flowers 5, ligule of their corolla broadly obovate, 2 mm long, 1.5—2 mm broad, tube 1.5 mm long; achenes obovate-oblong, 1 mm long, glabrous, pappus wanting; corolla of disc-flowers 2 mm long, achene oblong, nearly 1 mm long, pappus wanting.

**Distribution:** Europe, N. Africa, Asia, introduced into the Malay Archipelago, New Guinea, Australia, New Zealand, Tasmania, North and South America.

**NEW GUINEA.** East. Eastern Highlands Dist.: Goroka Subdist., Asaro-Mairifatica divide, Daulo camp, Pullen 473 (CANB, LAE); Upper Chimbu R. valley, Keglsugl, Borgmann 281 (L). — Southern Highlands Dist.: Upper Kaugel valley, Kebaka, Alipe settlement, Bowers 158 (CANB).

**Collector's annotation:** flowers white.

**Ecology:** Weed. Altitude 2295—2600 m.

## **2. ISCHNEA**

*Ischnea* F. v. M., Trans. Roy. Soc. Victoria 1 (2) (1889) 13; Boerl., Handl. 2 (1891) 217; Hoffmann in E. & P., Nat. Pfl. Fam. 4, 5 (1894) 279; Robinson & Brettell, Phytologia 26 (1973) 82, 153—158.

Herbs, sometimes procumbent. *Leaves* alternate, sessile, linear or narrowly spathulate, basal ones rosulate. *Heads* terminal, solitary, heterogamous, small; involucre campanulate or basin-shaped, phyllaries 8, equal, more or less 2-seriate; marginal flowers 8—21, one-seriate, female, corolla shortly ligulate, ligule (narrowly) oblong, tube very short or wanting, achene narrowly obovoid, subangular, curved, style-arms very short, obtuse, pappus wanting; disc-flowers 6 to many, masculine, corolla tubular, limb campanulate, lobes 4 or 5, acute, tube short, anthers entire at the base, obtuse at the top, achene rudimentary, stalk-like, style thick, undivided, acute, papillose, pappus wanting; receptacle flat, naked, alveolate.

**Distribution:** 3 species in New Guinea.

### **KEY TO THE SPECIES**

- 1a. Corolla of disc-flowers 5-lobed . . . . . 2
- b. Corolla of disc-flowers 4-lobed . . . . . 2. ***I. korythoglossa***

- 2a. Caespitose, basal leaves erect, linear . . . . . **1. *I. elachoglossa***  
 b. Stoloniferous, basal leaves oblique-patent, linear-spathulate, recurved at the top  
**3. *I. spathulata***

**1. *Ischnea elachoglossa* F. v. M.**

*I. elachoglossa* F. v. M., Transact. Roy. Soc. Victoria 1 (2) (1889) 13; Mattfeld, Bot. Jahrb. 62 (1929) 440.

Erect herb, 1.5—22 cm tall. Stems tufted, filiform, usually unbranched, grooved, glabrous or nearly so, 0.5 mm thick. Basal leaves erect, linear, broadened to the base, truncate at both ends, with recurved edges, one-nerved, entire, subterete, somewhat succulent, glabrous, minutely glandular, 2.5—20 by ca. 1 mm; higher leaves gradually smaller to the top of the stem, linear, truncate at the top, entire or rarely with one obtuse tooth on each side near the top (also in the type), glabrous, minutely glandular above, 2—14 by 0.5—1 mm; internodes 1—2 cm long. Phyllaries oblong, obtuse, glabrous except some very short thick hairs at the top, more or less glandular, 1.5—4 mm long, margins sometimes purple; marginal flowers 9—21, corolla of marginal flowers 2—5 mm long, with very short tube, ligule narrowly oblong, obtuse, sometimes emarginate, 3- or 4-nerved (purplish when dry), achene curved, prominently ribbed, glabrous, 1.5—2 mm long, disc-flowers 6 to many, corolla 5-lobed, about 2 mm long.

**Distribution:** New Guinea.

**a. forma *elachoglossa*. — Fig. 2c—h.**

Herb 4—22 cm tall. Phyllaries about 4 mm long, corolla of marginal flowers 3—5 mm long.

**NEW GUINEA.** West. Lake Habbema, *Brass* 9177 (A, L), 21116 (A); Mt. Carstensz, *Wissel* 92 (BO). — East. Southern Highlands Dist.: Mt. Giluwe, *Schodde* 1957 (CANB, L), *Coope*, *Wardle & Katik* NGF 40240 (L). — Sepik Dist.: Telefomin Subdist., Sirius Plateau, *Craig* 86 (L).

**Collectors' annotations:** phyllaries green, flowers yellow.

**Ecology:** wet to dry alpine grassland at 3000—4450 m.

**b. forma *nana* Koster, *nova forma***

Nana, 1.5—5.5 cm alta. Folia caulina saepe desunt. Involucrisquamae 1.5—2 mm longae; corolla florum marginalium 2 mm longa.

**Typus:** *Brass & Meyer Drees* 10096 (L).

**NEW GUINEA.** West. Mt. Wilhelmina, *Brass & Meyer Drees* 9396 (A, L), 9739 (L), 9978, 9980, 10039 (A, L), 10096 (L, type; A), 10155 (A, L); Mt. Carstensz, *Wissel* 106 (BO); id., Dugundugu Plateau, *Hope* ANU 16039 (CANB).

**Collectors' annotations:** cushioned, tufted, tufts 5—10 cm in diam., leaves pale beneath, tips of phyllaries very dark brown, flowers yellow, red in bud.

**Ecology:** wet to dry alpine grassland at 3400—4240 m.

**2. *Ischnea korythoglossa* Mattfeld**

*I. korythoglossa* Mattfeld, Nova Guinea 14 (1929) 526, tab. 91 B fig. 1—11; Bot. Jahrb. 62 (1929) 440.

Tufted, 4—10 cm tall, stem filiform, grooved, glabrous or nearly so. Basal leaves erect, linear or spathulate-linear, obtuse and truncate at the top, edges recurved, one-nerved, entire, somewhat succulent, 20—25 mm long, 0.5 mm broad, higher leaves lanceolate, sheath-like at the lower part, obtuse at the top, usually with two finger-shaped truncate teeth at the upper part, rarely with only one tooth or entire, one-nerved, 2—3 mm long,

0.5 mm broad, all leaves glabrous or scarcely pilose, minutely glandular above, glabrous below. *Heads* very small; phyllaries oblong, obtuse, 3-nerved, glabrous, 2 mm long. Marginal flowers 9 (acc. to Mattfeld 8—11), corolla oblong, obtuse, 2-nerved, tube wanting, 1.5 mm long, style-arms very short, truncate, papillose at the top, achene oblong, angular, glabrous, 1 mm long. Disc-flowers 4 (acc. to Mattfeld 4 or 5), 1.5 mm long, tube shorter than limb, limb with 4 fairly broad subacute lobes, style clavate, entire, achene rudimentary.

**Distribution:** New Guinea.

NEW GUINEA. West. Mt. Oranje, Meerbivak (near Mt. Wilhelmina), 1913, Versteeg 2496 (BO, GH, L).

**Collector's annotation:** flowers yellow.

**Ecology:** grassy plain near lake. Altitude 3600 m.

### 3. *Ischnea spathulata* Mattfeld

*I. spathulata* Mattfeld, Bot. Jahrb. 68 (1937) 267.

Stoloniferous, 8—30 cm tall, stem filiform, 1 mm thick, grooved, glabrous, sparsely glandular. Basal leaves oblique-patent, linear-spathulate, recurved at the top, with a long linear lower part, gradually broader to the truncate base, edges recurved, entire or with few finger-shaped teeth, obtuse, often truncate at the top, glabrous, glandular above, one-nerved, probably somewhat succulent, 1—6 cm by 1—1.5 mm, higher leaves lanceolate, obtuse, thickly mucronulate at the top, truncate at the base, glabrous, minutely glandular above, entire or with few finger-shaped teeth, probably somewhat succulent, 3—8 by up to 1 mm. Phyllaries oblong, mucronate and with a bunch of few short articulate hairs at the top, further glabrous, 3-nerved, 4—5 mm long. Marginal flowers ca. 12, corolla narrowly oblong, truncate at the base, subacute, without tube, 4-nerved, 2.5 mm long, style-arms very short, broadly elliptic, papillose, achene glabrous, 1 mm long. Disc-flowers ca. 16, corolla 5-lobed, 1.5—2 mm long.

**Distribution:** New Guinea.

#### a. forma *spathulata*. — Fig. 2b.

Leaves entire.

NEW GUINEA. West. Carstensz Mts., west of Mt. Ertzberg, *Hope ANU 10864* (CANB). — East. Central Dist.: Mt. Albert Edward, *Brass 4268* (type; iso- in A, BO), *4489* (BO, GH); Goilala Subdist., Mt. Dickson, *Harley TNG 12986* (L); Tapini Subdist., Mt. Strong, *Coope & Stevens NGF 46188* (L). — Morobe Dist.: Huon Penins., Sarawaket Ra., *Clemens 5905* (A); id., Sundumbellang, *Hoogland 9965* (L); id., Mt. Enggom, *Van Royen NGF 16218* (L); id., Upper Zaran Creek, *Van Royen NGF 16195* (L). — Western Highlands Dist.: Kubor Ra., Mt. Kinkain, *Vink 16192* (L).

**Collectors' annotations:** erect, rosular, gregarious, leaves mid-green or light green, phyllaries purple, corolla of marginal and of disc-flowers (bright) yellow.

**Ecology:** moist alpine grasslands, in subalpine shrubbery along rivulet, in margin of alpine shrubbery under cover of tall grass and *Coprosma* shrublets. Altitude 3450—3750 m.

#### b. forma *digitata* Koster, *nova forma*. — Fig. 2a.

*I. brassii* H. Robinson & Brettell, Phytologia 26 (1973) 157.

Folia superiora dentata, dentibus digitiformibus utrimque uno vel duo, raro folia basalia dentata quoque, dentibus digitiformibus utrimque uno.

NEW GUINEA. East. Eastern Highlands Dist.: Mt. Wilhelm, *Borgmann 93* (L); id., Lake Aunde, *Mc Vean & Wade ANU 7190* (L), *Womersley & Osborn NGF 15321* (L, type); id., path from Lake Piunde to Monolithic Rock, *Van Royen 16003* (CANB, L); id., Bende Valley, *Van Balgooy 916, 937* (L); id., Brass' Tarn,

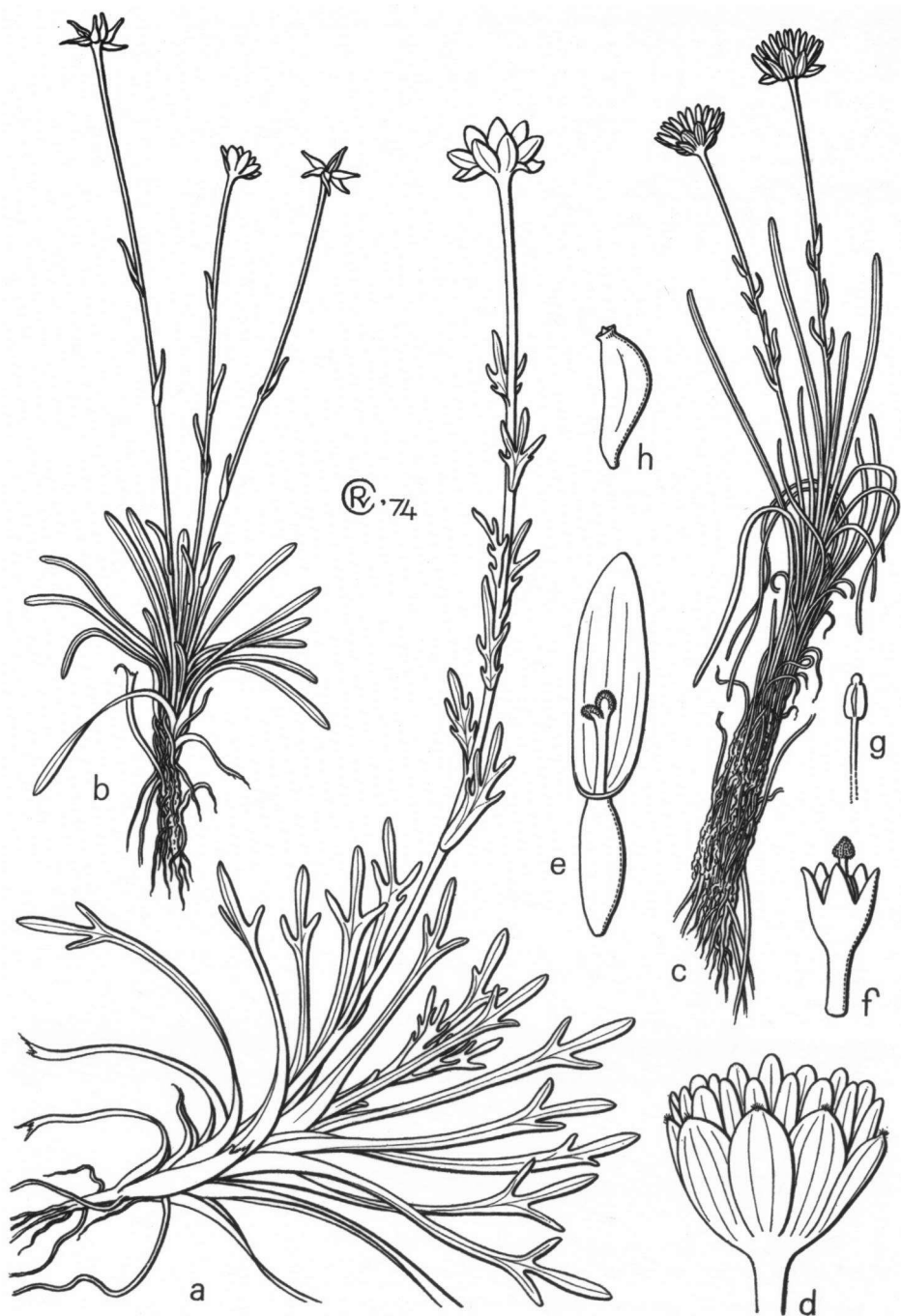


Fig. 2. *Ischnea spathulata* f. *digitata*. — a. habit, nat. size (Womersley & Osborn NGF 15321). — *Ischnea spathulata* f. *spathulata*. — b. habit, nat. size (Hoogland 9965). — *Ischnea elachoglossa* f. *elachoglossa*. — c. habit, nat. size; d. head, X 5; e. marginal flower, X 10; f. disc-flower, X 10; g. stamen, X 10; h. achene, X 10. (c: Brass 9177; d—h: Schodde 1957).



*Van Balgooy* 371 (L); id., saddle between Upper Piunde and Guraguragukl valleys, *Van Balgooy* 65 (L); id. Lake Tekoh Pangwa, *Van Balgooy* 798 (L); id., near summit, *Kairo & Streimann* NGF 35761 (L); id., east slopes, *Brass* 30165 (CANB, L, NY; US, type), *Hoogland & Pullen* 5783 (CANB, L, LAE), *Walker* ANU 5173 (L).

**Collectors' annotations:** rosetteplant, bright green, strongly stooling, in small cushions, leaves glossy, phyllaries green, flowers yellow to yellow red.

**Ecology:** moist alpine grassland to  $\pm$  inundated peat, also in moss cushions and in low scrub, on flats to fairly steep rocky slopes; altitude 3480—4260 m.

#### DUBIOUS AND EXCLUDED SPECIES

*Ischnea keysseri* Mattfeld, Bot. Jahrb. 62 (1929) 440, 498.

No specimen of this species was available. It was described as small (to 5 cm tall) with entire leaves and disc-flowers with a 4-lobed corolla. It was collected in Finisterre Ra., top of Bolan, at 3400—3800 m alt., 1912, *Keysser* 315 (B, type, lost).

*Ischnea latifolia* Mattfeld, Bot. Jahrb. 70 (1940) 475.

The iso-type studied of this species (*Clemens* 5901 (A)), the only specimen available, is incomplete, since no flowers are left in the heads. It does not belong to *Ischnea*, its involucre being composed of 16 phyllaries. In *Ischnea* the number of phyllaries is 8. Mattfeld was not certain about the correctness of placing this species in the genus *Ischnea* for several reasons. The two specimens available to him were also incomplete.

#### 3. CENTIPEDA

*Centipeda* Lour., Fl. Cochinch. (1790) 492; Lessing, Syn. Comp. (1832) 200; Benth. & Hook. f., Gen. Pl. 2 (1873) 430; Clarke, Comp. Ind. (1876) 151; Boerl., Handl. 2 (1891) 243; Hoffmann in E. & P., Nat. Pfl. Fam. 4, 5 (1894) 280; Cabrera in Correa, Fl. Patag. 7 (1971) 168.

Herbs. *Leaves* alternate, spatulate, entire or coarsely dentate. *Heads* solitary, axillary, very small, subglobose or semi-globose, heterogamous; phyllaries bi-seriate, nearly equal; marginal flowers very small, many-seriate, female, corolla tubular, very shortly 2- or 3-dentate, style-arms 2, very short, broad, achene 4-, rarely 3- or 5-angular, pappus wanting; disc-flowers much fewer, bisexual, corolla with a very short tube and a campanulate, widely patent, 4-partite limb, style clavate, not divided, anthers broad, obtuse at the base and rounded at the top, achene like that of marginal flowers; receptacle flat or convex, naked.

**Distribution:** 6 species in Asia, Australia, New Guinea, New Zealand, Polynesia, Madagascar, S. America.

*Centipeda minima* (L.) A. Br. & Aschers.

*Artemisia minima* L., Sp. Pl. (1753) 849. — *C. minima* A. Br. & Aschers., Index Sem. Hort. Berol. (1867) App. 6; Merr., En. Philip. 3 (1923) 615; Mattfeld, Bot. Jahrb. 62 (1929) 440; Christophersen, Bish. Mus. Bull. 128 (1935) 211; Parham, Pl. Fiji Is. (1964) 232; Ohwi, Fl. Jap. (1965) 889; Koster in Backer & Bakh. f., Fl. Java 2 (1965) 422.

*C. orbicularis* Lour., Fl. Cochinch. (1790) 493; Boerl., Handl. 2 (1891) 243; Gagnep. in Lecomte, Fl. Gén. I.-C. 3 (1924) 587; Guillaumin, Bull. Soc. Bot. France 84 (1937) 57; Allan, Fl. New Zeal. 1 (1961) 692.

Herb, 8—18 cm tall, often much branched, stems many, often prostrate, filiform, ribbed, 1 mm thick, sparsely whitish arachnoid-pilose (short hairs mixed with longer crispy ones), internodes 2—10 mm long. *Leaves* sessile, narrowly spatulate, pinnatilobate or dentate (lobes or teeth mucronulate), obtuse and mucronulate at the top, sometimes 3-lobate at the top and entire at the lower part, sparsely pilose (hairs very short) or subglabrous on

both sides, 5—20 mm by 1—7 mm, youngest leaves whitish arachnoid-pilose below. *Heads* sessile, 3—5 mm in diam., phyllaries oblong, rounded at the top, subdentate, about 1 mm long; marginal flowers numerous, corolla about 0.2 mm long, achene turbinate-oblong, whitish pilose (hairs obliquely patent), nearly 1 mm long; disc-flowers few, corolla nearly 0.5 mm long, achene like that of marginal flowers, empty; receptacle very convex.

**Distribution:** Madagascar, S., SE. and E. Asia, Malesia, Australia, New Zealand, New Caledonia, Fiji and Samoa Is.

**NEW GUINEA.** West. Taram R., SE. of Merauke, *Van Royen 4606* (L, LAE). — East. Central Dist.: Veiya, *Carr 11603* (L). — Western Dist.: Penzara, between Morehead and Wassi Kussa R., *Brass 8461* (A, BM, BO, BRI, L, LAE); Orioma R., Wuroi, *Brass 5826* (BRI, GH). — Southeast: Lorne R., 1878, *Chalmers s.n.* (MEL); Cloudy Mts., 1878, *Chalmers s.n.* (MEL).

**Collectors' annotations:** strongly smelling after *Matricaria chamomilla* leaves fleshy, seagreen, flowers greenish white or yellow.

**Ecology:** open places, on thinly grassed patches in savannah, banks of a permanent waterhole, on muddy bank of river. From sea-level to 30 m.

#### 4. ABROTANELLA

*Abrotanella* Cassini, Dict. Sci. Nat. 36 (1825) (A) 27; DC., Prodr. 6 (1837) 141; Benth., Fl. Austr. 3 (1866) 553; Benth. & Hook. f., Gen. Pl. 2 (1873) 431; Hoffmann in E. & P., Nat. Pfl. Fam. 4, 5 (1894) 280; Allan, Fl. New Zeal. 1 (1961) 692; Burbidge, Dict. Austr. Pl. (1963) 1; Curtis, Fl. Tasmania 2 (1963) 385; Robinson & Brettell, Phytologia 26 (1973) 82.

Small perennial herbs, often densely tufted. *Leaves* alternate, very crowded, sessile, entire. *Heads* terminal, solitary or few together or in small corymbs, sessile or pedunculate, heterogamous, discoid; involucre campanulate or basin-shaped, phyllaries 2- or 3-seriate, almost equal; marginal flowers few, one-seriate, female, corolla tubular, 3- or 4-lobed, thickened at the base, style shortly bifid, achene oblong, angular or somewhat compressed, obtuse or contracted at the top, glabrous, pappus crown-shaped or wanting; disc-flowers few, bisexual or male, fertile or sterile, corolla tubular, 4- or 5-lobed, anthers obtuse or subacute or shortly sagittate at the base, style-arms short, truncate, achene like that in marginal flowers, often empty; receptacle nearly flat, naked.

**Distribution:** ca. 20 species in New Guinea, Australia, New Zealand, Tasmania, southern part of S. America, Falkland Isl., Juan Fernandez Isl.

#### *Abrotanella papuana* S. Moore — Fig. 1h—m.

*A. papuana* S. Moore, Trans. Linn. Soc. Bot. 9 (1916) 86; Mattfeld, Bot. Jahrb. 62 (1929) 441.

Pulvinate, 1.5—4 cm tall; roots many, fairly thick. *Leaves* linear-spathulate, slightly broadened to the base, obtuse and truncate at the top, minutely glandular on both sides, sparsely pilose above, in the lower part with long, crispy, articulate hairs on the margin, basal part persistent after leaf has fallen, 10—25 by ca. 1 mm. *Heads* solitary, pedunculate, subangular, peduncle sparsely white pilose, minutely glandular, 2—20 mm long, bearing two short leaf-like bracts; involucre basin-shaped, phyllaries about 10, oblong, shortly mucronulate, acute, grooved, glabrous, glandular, 3 mm long, nerves prominent; marginal flowers 8 or 9, corolla 4-lobed, 1—2 mm long, style-arms deltoid, very short, obtuse, achene obovate-turbinate, somewhat compressed, rotundate-truncate at the top, ribbed, glabrous, 1.5—2 mm long; disc-flowers 4, corolla 1.5—2 mm long, anthers shortly sagittate at the base, obtuse at the top, style gradually thickened to the top, shortly bifid; achene 1—2 mm long.

**Distribution:** New Guinea.

NEW GUINEA. **West.** Utakwa R. to Mt. Carstensz, 1913, *Kloss s.n.* (BM, type); Mt. Wilhelmina, northern slope, *Brass & Meyer Drees* 10157, 10388 (A, L); Mt. Oranje, *Versteeg* 2491 (BO, GH, L). — **East.** Western Highlands Dist.: Kubor Ra., Mt. Kinkain, summit, *Vink* 16106, 16273 (L); Kubor Ra., Mt. Kantz, *Vink* 16190 (L). — Southern Highlands Dist.: Tari Subdist., Mt. Ambua, *Kalkman* 4975 (L); Mt. Giluwe, east northeast slopes, ridge below Dog Peak, *Stevens & Foreman LAE* 55918 (L, LAE).

**Collectors' annotations:** forming small cushions; involucre dark purple, corolla purplish, dark violet, dull reddish, or tube white and lobes lilac, ripe achenes (dark) purple; peduncles bent, so flowers close to ground at anthesis, becoming erect in fruit.

**Ecology:** bare ground, moist alpine grasslands at 3400—4100 m altitude.

### 5. COTULA

The New Guinea species of this genus have been studied by P. van Royen and D. Lloyd and are published on pp. 197—206.